



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/738,332	12/17/2003	Carolus Matthias Anna Maria Mesters	TS1313 (US)	7939

7590 04/24/2006

Yukiko Iwata
Shell Oil Company
Legal - Intellectual Property
P.O. Box 2463
Houston, TX 77252-2463

EXAMINER

DOUGLAS, JOHN CHRISTOPHER

ART UNIT PAPER NUMBER

1764

DATE MAILED: 04/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/738,332

Applicant(s)

MESTERS ET AL.

Examiner

John C. Douglas

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/17/03</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frame (US 3978137) in view of Yoo (US 3945914) and Mahadev (WO 92/20621).
5. With respect to claims 1-19 and 21-43 Frame discloses contacting a hydrocarbon feedstock with air and a catalyst comprising platinum, rhodium, or iridium on a zirconia support at a temperature between about 50 and about 400 degrees C at a pressure of about 1 atm (see Frame, column 1, lines 4-12, column 3, lines 1-19, and column 4, lines 10-13 and 60-65). Frame does not disclose where the feed is a gaseous feedstock containing at most 5 vol% of hydrogen sulfide and where the feed mixed with the oxygen-containing gas has an oxygen-carbon ratio below 0.10.

However, Mahadev discloses a feed stream of natural gas containing up to 10 wt% of hydrogen sulfide (see Mahadev, page 1, lines 21-24 and page 32, lines 3-9).

Mahadev discloses that the adsorptive capacity of the catalyst remains unchanged for feeds with less than 10 wt% of hydrogen sulfide (see page 32, lines 3-9).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Frame to include a feed stream of natural gas containing up to 10 wt% of hydrogen sulfide in order to preserve the adsorptive capacity of the catalyst.

Also, Yoo discloses that the mixture of feed and oxygen-containing gas has an oxygen-sulfur ratio of about 0.5 and the sulfur content of the hydrocarbon feed is about 1 wt%. Hydrocarbons must contain at least carbon atom and therefore 99 % of the feed would contain carbon atoms. Thus, the oxygen-carbon ratio of the feed would be approximately 0.005. (See Yoo, column 1, lines 64-68 and column 2, lines 46-63).

Yoo discloses that the concentration of oxidant is usually dependent on the amount of sulfur present in the hydrocarbon material (see Yoo, column 2, lines 46-53).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Frame to include that the oxygen-carbon ratio of the feed would be approximately 0.005 because the amount of oxygen present is dependent on the amount of sulfur in the feed.

6. With respect to claims 20 and 44, Frame in view of Yoo and Mahadev disclose everything in claim 1 (see paragraph 5). Frame does not disclose where the feed is a gaseous feedstock containing at most 1000 ppmw of sulfur.

However, Mahadev discloses a feed stream that contains 1000-2000 ppm of sulfur dioxide (see Mahadev, page 17, lines 7-9).

Mahadev discloses that such a quantity of sulfur is typical for a flue gas (see Mahadev, page 17, lines 8-10).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Frame to include a feed stream that contains 1000-2000 ppm of sulfur dioxide because such a quantity of sulfur is typical for a flue gas.

Conclusion

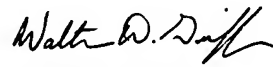
7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Herbstman (US 3565793); Clough (US 4946578); and Jagodzinski (US 4419337).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John C. Douglas whose telephone number is 571-272-1087. The examiner can normally be reached on 7:30 A.M. to 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JCD


Walter D. Griffin
Primary Examiner